

We Claim:

1. A method for management of a packaging products, including labels, supply chain comprising the steps of:
  - 5 (a) entering digital data representing a packaging design and a packaging product design into a computer system;
  - (b) entering digital data representing an order for delivery of a specified quantity of a packaging item, incorporating the packaging product design, on a specified date into the computer system;
  - 10 (c) entering digital data representing production resources necessary to produce the packaging item ordered in the specified quantity into the computer system;
  - (d) entering digital data representing the availability of production resources necessary to produce the quantity of the packaging item ordered on the specified date into the computer system; and
  - 15 (e) accessing the data entered in the preceding steps to determine the supply chain's ability to produce the packaging item ordered in the specified quantity on the specified date.
- 20 2. The method of claim 1 wherein the computer system is accessible by a network shared by members of the packaging supply chain.
3. The method of claim 2 wherein the network is the internet.
- 25 4. The method of claim 3 wherein the digital data representing a packaging product design is entered in the computer system using the internet.
5. The method of claim 4 wherein the digital data representing the order for the packaging item is entered into the computer system using the internet.
- 30 6. The method of claim 5 wherein the digital data representing the availability of production resources are entered in the computer system using the internet.

7. The method of claim 6 wherein the data representing the availability of production resources is stored and managed in time buckets.

5 8. The method of claim 7 wherein the production resources are production line availability, services, and material supplies.

9. The method of claim 1 wherein the digital data representing the packaging design is processed to create metadata comprised of:

- 10 (a) data representing each color necessary to print the packaging item;
- (b) data representing the amount of ink necessary to print the packaging item; and
- (c) data representing the degree of bounce associated with printing the packaging item.

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10. The method of claim 9 wherein the metadata comprises:

- (a) data representing the degree of process difficulty associated with printing the packaging item; and
- (b) data representing the dimensions of the packaging product design.

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11. The method of claim 10 wherein the metadata is used to create the packaging product design.

12. The method of claim 10 wherein the package item is created by the steps  
25 of:

- (a) an end user creating an item skeleton comprised of an image and a package structure; and
- (b) a converter adds detail to the item skeleton comprising a bill of materials, routings, and production item configuration.

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13. The method of claim 12 wherein:

- 5 (a) metadata is used to define resource requirements necessary to produce a packaging item;
- (b) an order for a specific packaging item is automatically slotted to a production resource based on the capability of the production resource to produce the item ordered; and
- (c) requested order dates and quantities are electronically compared to projected production resources availability for purposes of order acceptance.

10 14. A method for management of placement and fulfillment of orders for printed packaging products, including labels, comprising the steps of:

- 15 (a) storing digital data associated with a plurality of orders for printed packaging items;
- (b) storing digital data associated with multiple scheduling options for production of the packaging items associated with the plurality of orders; and
- (c) creating a schedule for production of the packaging items associated with the plurality of orders from among the multiple scheduling options.

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15. The method of claim 1 wherein a plurality of accepted orders are scheduled using decision support tools that provide immediate feedback on the impact of adding an order to a schedule, moving an order in a schedule, or deleting an order from a schedule.

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16. The method of claim 15 wherein the means of adding, moving, or deleting an order is drag and drop functionality.

17. The method of claim 16 wherein the computer system maintains multiple  
30 alternative schedules for producing the plurality of accepted orders.

18. The method of claim 17 wherein schedules for successive steps in the manufacturing process are linked to one another, and immediate feedback on the impact of adding, moving, or deleting an order includes the impact that this change will have on subsequent steps in the production process.

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19. The method of claim 18 comprising the steps of:

- (a) comparing projected production resource availability to actual production resource availability;
- (b) comparing production schedules to actual production performance;
- 10 and
- (c) adjusting production availability or schedule assumptions to achieve consistency with actual performance.

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20. The method of claim 1 wherein providers of material supplies have access to the requirements for material supplies necessary to produce the packaging item ordered.

21. A computer system for management of a packaging products, including labels, supply chain comprising:

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(a) storage means programmed to store data comprised of:

- (i) digital data representing a packaging design and a packaging product design;
- (ii) digital data representing an order for delivery of a specified quantity of a packaging item, incorporating the packaging product design, on a specified date;
- 25 (iii) digital data representing production resources necessary to produce the packaging item ordered in the specified quantity; and
- (iv) digital data representing the availability of production resources necessary to produce the quantity of the packaging item ordered on the specified date; and

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(b) means for accessing the data stored in the computer system to determine the supply chain's ability to produce the packaging products ordered .

5 22. The computer system of claim 21 wherein the computer system is capable of being accessed by a network shared by members of the packaging supply chain in the specified quantity on the specified date.

10 23. The computer system of claim 22 wherein the network is the internet.

24. The computer system of claim 23 wherein the computer system is capable of receiving the digital data representing a packaging product design from the internet.

15 25. The computer system of claim 24 wherein the computer system is capable of receiving the digital data representing the order for packaging products from the internet.

20 26. The computer system of claim 25 wherein the computer system is capable of receiving the digital data representing the availability of production resources from the internet.

25 27. The computer system of claim 26 wherein the computer system is programmed to store and manage the digital data representing the availability of production resources in time buckets.

28. The computer system of claim 27 wherein the production resources are production line availability, services, and material supplies.

30 29. The computer system of claim 21 wherein the computer system is programmed to process the digital data representing the packaging design to create metadata comprised of:

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- (a) data representing each color necessary to print the packaging item;
- (b) data representing the amount of ink necessary to print the packaging item; and
- (c) data representing the degree of bounce associated with printing the packaging item.

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30. The computer system of claim 29 wherein the metadata comprises:

- (a) data representing the degree of process difficulty associated with printing the packaging item; and
- (b) data representing the dimensions of the packaging product design.

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31. The computer system of claim 30 wherein computer system is programmed to use the metadata to create the packaging product design.

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32. The computer system of claim 31 wherein the computer is programmed to allow for creation of the package item by the steps of:

- (a) storage of an item skeleton comprised of an image and a package structure acquired from an end user; and
- (b) adding detail to the item skeleton comprising a bill of materials, routings, and production item configuration.

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33. The computer system of claim 32, wherein:

- (a) the computer system is programmed to use metadata to define resource requirements necessary to produce a packaging item;
- (b) the computer system is programmed to automatically slot an order for a specific packaging item to a production resource based on the capability of the production resource to produce the item ordered; and
- (c) the computer system is programmed to compare requested order dates and quantities to projected production resources availability for purposes of order acceptance.

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FOOTNOTES

34. The computer system of claim 21, wherein the computer system is programmed to schedule a plurality of accepted orders using decision support tools that provide immediate feedback on the impact of adding an order to a schedule, moving an order in a schedule, or deleting an order from a schedule.

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35. The computer system of claim 34, wherein the computer system is programmed to add, move, and delete an order by drag and drop functionality.

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36. The computer system of claim 35, wherein the computer system is programmed to maintain multiple alternative schedules for producing the plurality of accepted orders.

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37. The computer system of claim 36, wherein the computer is programmed to link schedules for successive steps in the manufacturing process to one another, and provide immediate feedback on the impact of adding, moving, or deleting an order, including the impact that this change will have on subsequent steps in the production process.

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38. The computer system of claim 21, wherein the computer system is capable of providing access to data representing the requirements for material supplies necessary to produce the packaging items ordered to providers of material supplies.

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39. A method for management of production of packaging products, including labels, comprising the steps of:

- (a) entering digital data representing a packaging design for a packaging product in a computer system; and
- (b) processing the digital data representing the packaging design to create data representing each color necessary to print the packaging product.

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40. The method of claim 39 comprising the step of processing the digital data representing the packaging design to create data representing the amount of ink necessary to print the packaging product.

5 41. The method of claim 40 comprising the step of processing the digital data representing with the packaging design to create data representing the degree of process difficulty associated with printing the packaging product.

10 42. The method of claim 41 comprising the step of processing the digital data representing the packaging design to create data representing the degree of bounce associated with printing the packaging product.

43. A computer system for the management of placement and fulfillment of orders for printed packaging products, including labels, comprising:

- 15 (a) an electronic storage means for storing digital data associated with a packaging design for a packaging product; and  
(b) means for processing the digital data representing the packaging design to create data representing each color necessary to print the packaging product.

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44. The computer system of claim 43 comprising means for processing the digital data representing the packaging design to create data representing the amount of ink necessary to print the packaging product.

25 45. The computer system of claim 44 comprising means for processing the digital data associated with the packaging design to create data representing the degree of process difficulty associated with printing the packaging product.

30 46. The computer system of claim 45 comprising means for processing the digital data representing the packaging design to produce data representing the degree of bounce associated with printing the packaging product.



47. A method for management of a packaging products, including labels, supply chain comprising the steps of:

- (a) providing shared access to a computer system to a plurality of members of the supply chain;
- 5 (b) entering digital data representing forecasts of demand and supply into the computer system;
- (c) processing the data entered in step (b) to create projections of supply and demand imbalances over a selected time frame;
- 10 (d) changing forecast assumptions in the data representing forecasts of demand and supply and processing the data and using the computer system to determine the impact of alternative changes on the projections created in step (c); and
- (e) acting to implement the changes selected from the alternative changes from step (d).

15 48. The method according to claim 47 wherein acting to implement the changes selected from the alternative changes comprises entering digital data representing the changes selected into scheduling files.

20 49. A method for management of a packaging products, including labels, supply chain comprising the steps of:

- (a) entering digital data representing a packaging design for a packaging product into a computer system;
- (b) entering digital data representing an order for delivery of a specified quantity of a packaging product on a specified date into the computer system;
- 25 (c) entering digital data representing production resources necessary to produce the packaging product ordered in the specified quantity into the computer system;
- 30 (d) entering digital data representing the availability of production resources necessary to produce the quantity of the packaging product ordered on the specified date into the computer system; and

- (e) accessing the data entered in the preceding steps to determine the supply chain's ability to produce the packaging product ordered in the specified quantity on the specified date.

5    50.    A computer system for management of a packaging products, including labels, supply chain comprising:

        (a) a digital data base containing data comprised of:

- (i)     data representing a packaging design and a packaging product design;
- 10          (ii)    data representing an order for delivery of a specified quantity of a packaging item, incorporating the packaging product design, on a specified date;
- (iii)   data representing production resources necessary to produce the packaging item ordered in the specified quantity; and
- 15          (iv)   data representing the availability of production resources necessary to produce the quantity of the packaging item ordered on the specified date; and

        (b) means for accessing the data in the database to determine the supply chain's ability to produce the packaging products ordered.

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